P16-12. Relative Dominance of Gag-Specific Cytotoxic T Lymphocytes Is Associated with Viral Load Inversely in HIV-1 Clade B' Infected Chinese

Retrovirology

Poster presentation

P16-12. Relative dominance of Gag-specific cytotoxic T lymphocytes is associated with viral load inversely in HIV-1 clade B' infected Chinese

M Jia*[1], J Chen[1], K Hong[1], S Liu[1], X Zhang[1], H Zhao[1], M Altfeld[2], B Walker[2], X Yu[2] and Y Shao[1]

Address: [1]Division of Virology and Immunology, National Center for AIDS/STD Control and Prevention, China CDC, Beijing, PR China and [2]Ragon Institute of MGH, MIT and Harvard, Boston, MA, USA

* Corresponding author

from AIDS Vaccine 2009
Paris, France. 19–22 October 2009

Published: 22 October 2009

Retrovirology 2009, **6**(Suppl 3):P241 doi:10.1186/1742-4690-6-S3-P241

This abstract is available from: http://www.retrovirology.com/content/6/S3/P241

Background

The role of $CD8^+$ T cells with cytotoxic (CTL) activity of different HIV proteins in controlling HIV-1 infection is still controversial, though a number of studies have suggested that gag-specific CTLs could play a superior role in viral control. The characterization of HIV-1-specific CTLs in genetic diverse individuals infected with locally prevalent HIV-1 strains will provide useful information in elucidating the mechanism of HIV-1 pathogenesis.

Methods

The HIV-1-specific CTLs were measured with an IFN-γ ELISPOT assay by using overlapping peptides covering the whole consensus clades B proteome in 114 untreated HIV-1 clade B' infected Chinese. The correlation of CTL responses with immune control of HIV-1 infection was analyzed.

Results

The mean spot-forming cells/10^6 PBMCs of positive responses to each of the HIV-1 proteins were as follows: Gag, 2853; Pol, 1305; Env, 928; Nef, 1244; Tat, 543; Rev, 827; Vpr, 260; Vpu, 476 and Vif, 365. PBMC from 101/114 (88.60%) subjects recognized at least one overlapping Gag peptide. Pol, Env, Nef, Tat, Rev, Vpr, Vpu and Vif were targeted by 85.09, 74.56, 78.95, 29.82, 29.82, 19.30, 12.28 and 32.46% of studied individuals, respectively. When viral loads were compared to the proportion of protein-specific CTL responses of the total virus-specific responses, we found an inverse association between viral loads and the breadth ($p < 0.001$) and magnitude ($p < 0.001$) of the relative Gag response, and a direct association between viral loads and the breadth of the relative Tat($p = 0.029$), Pol($p = 0.003$) and Env($p = 0.029$) response and magnitude of the relative Tat($p = 0.043$), Pol($p = 0.003$) and Env($p = 0.030$) response.

Conclusion

In present study, Gag is the most immunodominant region. The proportion of Gag-specific CTL responses among the total virus-specific CTL activity is inversely associated with viral loads. The dominance of Gag-specific responses may be an indicator of relative control of HIV infection.